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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,669	03/10/2004	Vinay Gupta	112056-0151U	4140
24267	7590	06/26/2008	EXAMINER	
CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210			RADTKE, MARK A	
		ART UNIT	PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,669	GUPTA ET AL.	
	Examiner	Art Unit	
	MARK A. X RADTKE	2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 February 2008.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-55 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Remarks

1. In response to communications filed on 27 February 2008, claim(s) 1 is/are amended and new claim(s) 50-55 is/are added per Applicant's request. Therefore, claims 1-55 are presently pending in the application, of which, claim(s) 1, 13, 19, 27, 33, 42, 48 and 50 is/are presented in independent form.
2. Applicant's amendments have necessitated new grounds of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 52 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the claim, Applicant describes "a **conventional** failover mechanism". There is no support found in the specification that defines what failover mechanisms are considered "conventional" and the term has no particular meaning in the art. The term renders the claim vague and indefinite because it gives no way of discerning what methods are conventional and which are not. The scope of the claim is impossible to ascertain and it appears that the scope would change with time, as new

data storage error handling techniques are developed and popularized. Examiner recommends removing the term or specifically defining a set of failover modes that are considered "conventional".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 6-22, 23-36 and 38-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau (U.S. Pat. No. 6,421,711) in view of VVR ("A Guide to Understanding Veritas Volume Replicator").

As to claim 1, Blumenau teaches a system configured to simplify management of a clustered storage system having a plurality of failover modes (see Abstract), the system comprising:

a user interface system that defines a plurality of failover modes (see columns 28-31, "Graphical User Interface for Virtual Ports" and see column 34, line 60 – column 35, line 6); and

a command set implemented by the user interface system and including a command for a user to set a cluster mode where the cluster mode includes at least one

of the plurality of failover modes (see column 33, lines 29-52, see cols. 34-35, spanning paragraph and see col. 11, ll. 43-55).

Blumenau does not explicitly teach wherein each failover mode automatically configures one or more ports on a selected storage system or a partner storage system in response to a failover condition.

VVR teaches wherein each failover mode automatically configures one or more ports on a selected storage system or a partner storage system in response to a failover condition (see pages 10-12, section "Recovery after problems").

Therefore, it would have been obvious to one of ordinary skill in the relevant art at the time the invention was made to modify Blumenau by the teaching of VVR because "a complete disaster recovery plan is not delivered by any one technology, service or vendor but rather a culmination of products that are implemented in order to provide the needed RPO and RTO of an application" (see VVR, page 3, "Introduction").

As to claims 2, 34 and 43, Blumenau, as modified, teaches wherein the user interface system comprises a command line interface (CLI) configured to support the command set (see columns 28-31, "Graphical User Interface for Virtual Ports").

As to claims 3, 20-21 and 35, Blumenau, as modified, teaches wherein the command set further comprises an igroup command that determines whether a set of initiators may utilize data access command proxying (see columns 12-21, "Storage Volume Partitioning by Named Groups", where "initiators" is read on "hosts").

As to claims 4, 22 and 36, Blumenau, as modified, teaches wherein the set of initiators comprises at least one fibre channel world wide name (see figure 5, column "Host Controller WWN" and see also column 13, lines 33-34, "host controller port WWN").

As to claims 6, 38, 53 and 55, Blumenau, as modified, teaches wherein the igroup command sets an igroup option to determine whether members of a set of initiators may use a partner port for proxying data access command (see column 15, lines 34-60 and see column 2, line 56 – column 3, line 18).

As to claims 7 and 11, Blumenau, as modified, teaches wherein the command set further comprises a cfmode command that sets a cluster mode for the clustered storage system (see column 12, line 65 – column 13, line 6).

As to claims 8, 14, 24, 28, 39 and 45, Blumenau, as modified, teaches wherein the cluster mode enables the clustered storage system to proxy data access requests received by a first storage system in the clustered storage system to a second storage system in the clustered storage system (see column 15, lines 34-60 and see column 2, line 56 – column 3, line 18 and see column 17, line 9 – column 18, line 5 and see column 10, lines 16-51).

As to claims 9, 15, 25, 29, 40 and 46, Blumenau, as modified, teaches wherein the cluster mode enables a first storage system in the clustered storage system to assume an identity of a second storage system in the clustered storage system (see column 11, lines 31-56).

As to claims 10, 26, 41 and 47, Blumenau, as modified, teaches wherein the cluster mode enables proxying of data access requests received by a first storage system in the clustered storage system to a second storage system in the clustered storage system and further enables the first storage system to assume an identity of the second storage system (see column 15, lines 34-60 and see column 2, line 56 – column 3, line 18 and see column 17, line 9 – column 18, line 5 and see column 10, lines 16-51 and see column 11, lines 31-56).

As to claims 12, 16-18, 30-32 and 44, Blumenau, as modified, teaches wherein the user interface system further comprises a graphical user interface having functionality to implement the command set (See columns 28-31, "Graphical User Interface for Virtual Ports". The phrase "having functionality to" renders the rest of the claim as intended use because the limitations are not positively recited. The limitation of "to implement the command set" will not be given patentable weight, although it is taught by Blumenau.).

As to claim 13, Blumenau teaches a method for simplifying management of a clustered storage system having a plurality of failover modes (see Abstract), comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 7 above.

As to claim 19, Blumenau teaches a system adapted to simplify management of a clustered storage system having a plurality of failover modes (see Abstract), the system comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 2 above.

As to claim 27, Blumenau teaches a computer readable medium, including program instructions executing on a computer, for simplifying management of a clustered storage system having a plurality of failover modes (see Abstract), the computer readable medium including instructions for performing the steps of:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 7 above.

As to claim 33, Blumenau teaches a system (see Abstract), comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 1 above.

As to claim 42, Blumenau teaches a method (see Abstract), comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 13 above.

As to claim 48, Blumenau teaches a system configured to simplify management of a clustered storage system having a plurality of failover modes (see Abstract), the system comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 1 above.

As to claims 49 and 51, Blumenau, as modified, teaches wherein the plurality of failover modes comprises a standby mode, a partner mode, a dual fabric mode, and a mixed mode (see VVR, pages 10-12).

As to claim 50, Blumenau, as modified, teaches a system (see Abstract), comprising:

a first server configured with one or more ports to send and receive messages from one or more clients and the first server connected to a first set of storage devices and a second set of storage devices, wherein the first server is configured to own the first set of storage devices; and

a second server configured with one or more ports to send and receive messages from one or more clients and the second server connected to the first set of

storage devices and the second set of storage devices, wherein the second server is configured to own the second set of storage devices (see Blumenau, col. 31, particularly II. 40-43 and see Abstract, "For convenient partitioning of storage among host processors, one or more virtual ports are assigned to each host, and a set of storage volumes are made accessible from each virtual port." and see figure 4, Hosts 22-25).

For the remaining limitations of this claim, Applicant is directed to Examiner's comments regarding claim 1.

As to claim 52, Blumenau, as modified, teaches wherein the STANDBY mode utilizes standby ports on the first server and a conventional failover mechanism (see col. 8, II. 24-45, "Therefore, if there is a single failure of any one of the loops or a single failure of any one of the port adapters, there will still be an operational path from each host to the internal back-plane busses (33, 34 in FIG. 1) in the cached disk storage subsystem.").

As to claim 53, Blumenau, as modified, teaches wherein the DUAL_FABRIC mode utilizes one or more virtual ports on the first server to emulate additional active ports for clients (see Abstract, "shared volume").

7. Claims 5, 23 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau, as modified, as applied to claims 3, 21 and 35, further in view of Clark

("IP SANs: A Guide to iSCSI, iFCP, and FCIP Protocols for Storage Area Networks", Published 26 November 2001, Section 8.5, "Internet SCSI").

As to claims 5, 23 and 37, Blumenau, as modified, teaches wherein the set of initiators comprises one or more identifiers (see columns 9-11, "WWN").

Blumenau, as modified, still does not explicitly teach wherein the identifiers are iSCSI identifiers.

Clark teaches wherein the identifiers are iSCSI identifiers (see pages 2-4, "iSCSI Address and Naming Conventions").

Therefore, it would have been obvious to one of ordinary skill in the relevant art at the time the invention was made to have further modified Blumenau, as modified, by the teaching of Clark because iSCSI is a well-known alternative to Fibre Channel technology and "the iSCSI specification allows for a lower functional level on top of IP to provide services such as IPSec data encryption" (see page 2, section 8.5.2, paragraph 2).

Response to Arguments

8. Applicant's arguments filed on 27 February 2008 with respect to the rejected claims in view of the cited references have been fully considered but are not deemed persuasive.

In response to Applicant's arguments that Blumenau does not teach "a plurality of failover modes" or "a command for a user to set a cluster mode" etc., the arguments have been fully considered but are not deemed persuasive. Blumenau provides a user-configurable system for assigning and mapping virtual and physical ports in a storage cluster (see Abstract). By assigning multiple hosts to the same virtual port through the use of shared volumes and other methods, Blumenau provides ways for an administrator to gracefully handle processor, storage controller and volume failures.

Applicant is directed to the portions of Blumenau cited above. Failover capabilities of the system are described throughout Blumenau, for example in the architecture illustrated in figure 39. Applicant is reminded to consider the reference as a whole.

In response to Applicant's arguments that VVR does not teach "a command for a user to set a cluster mode where the cluster mode includes at least one of the plurality of failover modes", the arguments have been fully considered but are not deemed persuasive. Specifically, Applicant argues that there is no teaching of a user-selectable failure mode. The cited portions of VVR indicate otherwise. On page 11, VVR states that, "**VVR can be configured** to stop operations at the primary site should a network fail." Later, it is taught that, "There are several methods to recover from a secondary loss." Then, "For primary outages, such as server failure, or server panic, **the customer has the choice** to wait for the primary to recover, or shift operations to a secondary server or location. For situations involving actual data loss at the primary, **the customer can** shift operations to a secondary, or restore data on the primary." All of these

teachings, and many more throughout VVR, recite optional language indicating that some user intervention may be required to determine how to proceed for a given failure scenario. This reads on Applicant's recitation of user-configurable failure modes.

Additional References

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of art with respect to storage cluster failure modes in general:

Doc. No.	Assigned to
US 4878726 A	Fatehi; Mohammad T.
US 6580709 B1	Gorshe; Steven Scott et al.
US 7039827 B2	Meyer; Richard et al.
US 6052795 A	Murotani; Akira et al.
US 6920580 B1	Cramer; Samuel M. et al.

Bhide, A.; Elnozahy, E.N.; Morgan, S.P.; Siegel, A., "A comparison of two approaches to build reliable distributed file servers," Distributed Computing Systems, 1991., 11th International Conference on , vol., no., pp.616-623, 20-24 May 1991.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications should be directed to the examiner, Mark A. Radtke. The examiner's telephone number is (571) 272-7163, and the examiner can normally be reached between 9 AM and 5 PM, Monday through Friday. If attempts to contact the examiner are unsuccessful, the examiner's supervisor, Christian Chace, can be reached at (571) 272-4190.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Customer Service at (800) 786-9199.

maxr

26 June 2008

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/Christian P. Chace/
Supervisory Patent Examiner, Art Unit 2165